APCO PROJECT 25 - New Technology Standards Project

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October 21, 1996

Ms. Donna Searcy, Secretary
Federal Communications Commission
1919 M Street NW, Room 222
Washington, D.C. 20554

Dear Ms. Searcy:

On behalf of the APCO Project 25 Steering Committee, we are pleased to submit our formal response to NPRM 96-86.

Sincerely,

Craig M. Jorgensen

Craig M. Jorgensen
Co-chair and Project Director

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
	)	
	)	
The Development of Operational,	)	WT Docket No. 96-86
Technical, and Spectrum	)	
Requirements for Meeting	)	
Federal, State and Local Public	)	
Safety Agency Communication	)	
Requirements Through the	)	
Year 2010	)	

COMMENTS OF THE PROJECT 25 STEERING COMMITTEE

The Project 25 Steering Committee hereby submits the following comments in response to the Commission's Notice of Proposed Rule Making 96-86. The Project 25 Steering Committee is the project management team established for the sole purpose of developing voluntary standards on behalf of interested Federal, State and City and County agencies and Associations. The Project 25 Steering Committee is comprised of public safety and communications officials from the States of Georgia, Florida, and Colorado; the city of Mesa, Arizona; the University of California at Berkeley; the Northern California Chapter of the Association of Public-Safety Communications Officials, Int. Inc. (APCO); the National Association of State Telecommunications Directors (NASTD); the National Communications System (NCS); the National Telecommunications Information Administration (NTIA), and the National Security Agency (NSA). Each of these agencies

and Associations has strongly supported this user-driven standards effort for over six years.

General Comments:

During the past seven years, the Project 25 effort has focused its attention on obtaining maximum utilization of the existing and future channels allocations, within the constraints and limitations already created by previous regulatory and user decisions. We are, therefore, pleased to see the Federal Communications Commission (FCC) attempt to address the long-term needs of the Public Safety Community. Although the Project 25 Steering Committee does not generally respond to FCC Notice of Proposed Rule Making and/or Dockets, we feel we have an obligation to support most of the Commission's efforts as outlined in 96-86 and yet comment on some of what we consider to be ill-conceived proposals and misconceptions.

Quality Technology:

The Project 25 Steering Committee supports the Commission's assumption that spectrum used by critical public safety functions and services must be protected in order to ensure government at all levels can fulfill their obligation to protect lives and property. Our goal, much like the FCC's, has been to help guarantee that tomorrow's public safety providers will have full "access to higher quality transmission, emerging technologies, and broader services, including the ability to communicate readily with one another (interoperability)."

Optimum Approach to Spectrum Management:

We also understand why the Commission believes an optimal approach to spectrum utilization would be to allow a number of individual approaches to become amalgamated and "strategically combined..." in a way that meets the highest "needs of the individual public safety entities." Although this is an altruistic concept that deserves careful consideration, we question how the FCC will protect the public safety users interest in the face of continuing pressures from some equipment manufacturers and other influential parties who are attempting to convince the Commission to protect special interests needs and expand spectrum auctions to generate additional Federal revenue. The Commission cannot and should not forsake common sense planning, engineering and management practice for instant funding gratification and perceived economic benefits at the expense of the life and safety of the American taxpayer.

The Commission's Goals for Interoperability:

The Project 25 Steering Committee strongly supports the concepts of building dynamic systems that include interoperability and robust features. We recognize these systems will be dependent on the Commission's allocations of additional spectrum to public safety. We also understand that high-quality, competitive service and spectrum-efficient technologies will be dependent, to a large degree, on standards like those created for Project 25.

PSWAC Spectrum Recommendations:

We also support most of the proposal and comments PSWAC provided the Commission. We believe it is critical that the Commission accelerate its efforts to provide public safety

the approximate 100 MHz of new spectrum PSWAC has recommended. We concur in their recommendation that there needs to be spectrum set aside for interoperability in each of public safety's spectrum allocations. Where possible, these interoperability allocations need to be set aside in adjacent spectrum.

High Speed Data Transport:

The Project 25 Steering Committee strongly supports PSWAC's proposal for the Commission to set aside new spectrum for public safety users to transmit and receive high-speed data on portables, mobiles and base stations.

Misinformation about Project 25:

In light of the obvious progress made by PSWAC, we once again find it unfortunate, but necessary, to comment on what we consider to be misinformation about Project 25, its intent, process, and goals and objectives. It continues to amaze and disappoint the volunteers and participants of Project 25 that a series of voluntary standards continue to draw so much attention and ire from a supplier who claims to be in favor of competition. Obviously, we disagree with that manufacturer's minority report in PSWAC and their comments the Commission used in its original Notice of Proposed Rule Making (NPRM) 96-86.

General Comments on PSWAC:

The Project 25 Steering Committee is supportive of the efforts of PSWAC and concurs with the majority of their conclusions. The authors of this report deserve the thanks and

appreciation of the entire public safety community and the Commission. The final report is representative of many thousands of hours of hard labor by public safety volunteers, government agencies, and the manufacturing community that supports them. We strongly believe the spectrum needs articulated in the PSWAC report are real and deserving of the Commission's urgent attention.

PSWAC Recommendations on the Need for Additional Spectrum:

The approximate 100 MHz of new spectrum PSWAC recommended to protect the property and lives of the citizens of this nation is insignificant in comparison to the amount of spectrum being allocated for entertainment and personal services. Our experience in Project 25 has shown the most difficult planning obstacle we had to overcome was the current lack of clear and clean spectrum which could be used to accommodate new technologies.

Spectrum Allocations for High Speed Data:

We also support and applaud PSWAC for recommending specific spectrum allocation for new technologies, wide-band digital data transmission and interoperability. During our standards process, it has been painfully obvious how beneficial clean spectrum is to the rapid deployment of new technology. PSWAC was very perceptive when it realized that public safety needs enough spectrum to accommodate smart-card driver licenses, on-board close-circuit video, portable electronic fingerprint identification, automatic NCIC and local and national electronically coded driver licenses, electronically coded vehicles and vehicle registration, electronically coded medical and immigration and naturalization cards and

numerous other applications, all based on direct video links, point of sales type scanners, magnetic card reader, computer terminal access and other types of scanning and automated technologies.

More importantly, the advent of high-speed data transmission system will allow greater integration and automation of public safety and criminal history files. It will allow the public safety personnel in the field to automatically update numerous files and records. It will speed up the criminal justice system and slow down crime. It will improve the ability of fire-service providers to actually understand how every building is constructed and what special hazards they may face. New technology will allow emergency medical personnel instant on-line access to some authorized patient files through the use of special identification cards. The Project 25 Steering Committee encourages the Commission to quickly act on this proposal so the public safety providers and its supporting industry can quickly take advantage of the operational and economic benefits they will derive from greater automation.

Minority Report:

Even though we support the final PSWAC report, we are deeply concerned with the minority report filed by Ericsson. It is this report, footnotes 49 and 51[1] of the NPRM and

[1]Letter to Phillip L. Verveer, Chair, PSWAC, from Dennis C. Connors, Vice President, Ericsson, Inc., dated October 24, 1995 (Ericsson letter) and Charles L. Jackson, A Need to Be Heard: Will Project 25 Meet Public Safety Communications Needs in 1995 and Beyond. (July 1995): Hatfield Associates, Inc., Competitive Considerations Associated with APCO Project 25 (Jan. 6, 1996).

the Additional Comments Sought On Non-Accredited Standards-Setting Organizations That Develop Standards For Public Safety Wireless Communications Equipment, that caused the Project 25 Steering Committee to modify our long-standing position of withholding detailed comments on FCC regulatory issues. Although we recognize and support Ericsson's desire to promote concepts and theories that best suit their corporate needs and business plans, we do not agree with their attempts to exploit the efforts of the PSWAC report and the FCC's NPRM to promote those plans. We believe Project 25's record and the millions of dollars and thousands of hours spent by TIA members and public safety users to develop these standards is indicative of the user community's involvement and commitment. We also believe the record of Ericsson's continued efforts to interfere with and delay that process should be kept in perspective and recognized for what it is, the effort of a single manufacturer to prevent publication of a standard which does not include all of their own methodology. Our comments will, therefore, address both Ericsson's PSWAC minority report and the footnotes, citations and studies on Project 25 the Commission used in their NPRM.

Designation of an Analog FM Baseline:

The Project 25 Steering Committee disagrees with Ericsson's proposal to have the Commission officially designate analog FM a base line interoperability standard. We believe Ericsson's proposal to have the Commission officially designate 25 KHz analog FM is only one more effort to support their own proprietary technology. While it is true there must be compatibility, both forward and backward, the adoption of a technology as an operating standard which the Commission has declared to be spectrally inefficient is

not acceptable. Rather, they should be consistent with what we believe are PSWAC recommendations, consistent with FCC rules and proposal to use the 25 KHz analog FM for existing equipment and a new narrow band 12.5 KHz baseline for all new equipment. In addition, there must be recognition of advancing technology and the option of creating a new base line standard for digital equipment. The Project 25 Steering Committee objects to any proposal that attempts to drive technology backwards at the expense of encouraging the status quo through the adoption of a 25 KHz analog FM base line interoperability standard.

We are also curious as to why Ericsson believes the FCC should issue a Notice of Proposed Rule Making to encourage the use and adaptation of new, narrow band 12.5 KHz and 6.25 or equivalent very narrow band technologies and then require that new technology suppliers use 25 KHz analog FM as the base line standard. We believe the Commission would create an egregious error if it "formally" accepts Ericsson's minority PSWAC proposal to adopt 25 KHz analog FM as a base line digital interoperability standard. Our concern is not with backward compatibility with analog systems, because Project 25 radios already are required to have backward compatibility to analog FM. We believe the Commission should carefully consider why Ericsson might be so interested to codify what is currently a market condition. Who would benefit from such a codification, the user or Ericsson? Is the Commission interested in migrating to the future or just protecting the past and special interest of some manufacturers? If the Commission really wants to make analog FM a base line interoperability standard, are they also willing to

mandate interoperability amongst the various proprietary analog FM radio systems at the same time?

It is difficult for us to understand why the Commission would want to consider an analog FM interoperability base line standard when new technology equipment like Project 25 radios already are backward compatible. What we need is to ensure all the new digital technologies are capable of interoperability by cultivating new digital technologies. In light of these and many other factors, we encourage the Commission to reject the regressive and spectrum-inefficient analog FM proposal submitted by Ericsson. Further, if the Commission wants to adopt a digital interoperability standard, they should seriously consider the adoption of Project 25's digital Common Air Interface standard and the rest of our robust suite of standards.

Intellectual Property Rights:

The Project 25 Steering Committee also finds Ericsson's expressed concerns about the encumbrance of Intellectual Property Rights (IPRs) inconsistent with their often-stated claim that they want more competition in the marketplace. Any company that wants to build new technology products must deal with the reality of IPRs. Ericsson knows if they want to use someone's IPR, they are ethically obligated to obtain a licensing agreement. Certainly the process of negotiating license agreements can and sometime does become contentious. However, neither the Commission nor the public safety community should be intimidated by the specter of the manufacturing community having to work in good faith efforts to resolve IPR issues.

Alleged Problems with the Current Standards Process:

The Committee objects to Ericsson's minority report's comments on "minimum baseline standards" and the problems with current standards efforts. Contrary to Ericsson's opinion, past so-called "non-accredited" standards efforts to develop standards have had a positive effect on competition in the public safety land mobile marketplace. APCO Project 25 and the standards that have been developed in the Project 25 process are on the verge of creating more competition in the public safety market than we have had for many, many years. Public safety agencies will not be obligated to buy all of their hardware from only the two largest suppliers. By the time the Commission finalizes the rules which they develop from this NPRM, the public safety community will be able to specify a Project 25 infrastructure and receive multiple technically compliant bids. Buyers will be able to purchase subscriber units from multiple vendors. At the same time, buyers may choose to simply specify their needs and then select from either the proprietary category of suppliers or the Project 25 category of suppliers. After buyers have explored all of the above-listed options, they may even choose to forgo competition and acquire a proprietary system from a number of manufacturers that have either chosen not to build Project 25 equipment or that also build proprietary systems in addition to Project 25 systems. Project 25 standards are creating competition, and perhaps it is that competition that is the real concern and not the lack of it.

Restrictive Market Conditions:

In spite of what Ericsson and its consultants would have the Commission believe, the user driven standards efforts of Project 25 are creating a market condition where public safety

agencies no longer have to choose from two sole-source hardware suppliers. Project 25 standards, much like the Project 16 standards that proceeded them are user driven and reflect the needs and requirements of the user. Ericsson's predecessor, GE Land Mobile, also opposed the outcome of Project 16, but eventually went on to become one of its biggest proponents, thereby capturing a larger share of the public safety land mobile market for themselves.

Unlike Project 16, Project 25 Standards ensure that the public safety community will be able to choose from at least three Project 25 system suppliers (Motorola, RELM & EF Johnson/RACAL), up to six subscriber unit suppliers (Transcrypt International, Stanilite, RELM, EF Johnson/RACAL, Garmin and Motorola), and five repeater/base station suppliers (Daniels, Stanilite, EF Johnson/RACAL, RELM and Motorola). In the new marketplace environment, buyers may also choose not to buy Project 25 equipment. They may freely choose to buy a proprietary Ericsson system or one of its licensee systems. Either way there will be more competition for the public safety community's business than there has been in the past. Project 25 has cracked the yoke of a market once controlled by Ericsson and Motorola. Today, there are a number of new, smaller Project 25 equipment suppliers that would not exist if Project 25 standards were not in place.

"A Need To Be Heard":

We also find it curious that Ericsson would choose to reference in their PSWAC filing comments that they previously provided the Commission, and that the Commission referenced in NPRM 96-86. Once again, the Project 25 Steering Committee respects and

supports Ericsson's right to submit comments and concerns to the Commission and PSWAC. However, the apparently inadvertent failure on the part of the Commission and PSWAC to specifically note that these documents, entitled ("A Need To Be Heard," and "Competitive Considerations Associated with APCO Project 25") were bought and paid for by Ericsson using Ericsson-provided data. To simply reference the comments leaves the implication that these reports are independently substantiating Ericsson concerns. In fact one or more of the authors of these reports represented Ericsson at virtually all of the PSWAC meetings.

The Commission should also be aware the Project 25 Steering Committee takes a number of exceptions to both the reports and the assumption used to create the reports. In the interest of brevity, we will only deal with what we consider to be some of the major points of contention that we have with the so-called "Jackson Report," "A Need To Be Heard" and "Competitive Considerations Associated with APCO Project 25."[2]

[2] The copy of the reports Ericsson provided the Project 25 Steering Committee, in August 1995, combined the Jackson Report and material from the Hatfield Report into one document. These may not reflect any new information that Mr. Hatfield included in his January 1996 report; we did not receive a copy of that report.

1. The report[3] we received was issued in August 1995 and claims to be an analysis of two competitive bids that occurred prior to August 1995. One of those bids was a Project 25 bid and the other a non-project 25 bid. As Ericsson and the authors of the report all knew or should have known, the Project 25 Steering Committee has continually stated we did not think Project 25 equipment would be available until the fall of 1995 or the spring of 1996. We have further stated that we did not think full Project 25 trunked systems would be available until the fall of 1998. Therefore, we believe it is grossly inaccurate to characterize either bid as being representative of a Project 25 bid proposal.
2. The report implies that the two bids used to establish the economic analysis were representative of competitive bidding for Project 25 vs. sole-source suppliers. In fact, the bids that were analyzed for the report were of a competitive procurement between Ericsson and Motorola. To our knowledge, neither of the companies proposed to immediately deliver Project 25 equipment. In a telephone interview conducted with an employee of Sarasota County,[4] Florida, it was determined that although they were pleased to have had the opportunity to choose a supplier who guaranteed to upgrade their new system to complete Project 25 compatibility at some future date, their decision was made because one vendor complied with their specification and one did not. The county representative further indicated that from their perspective, it would be extremely difficult

[3] For the purpose of brevity we have combined both reports under one title. This effort at simplification of titles is not intended to diminish the relative importance of one report over the other.
[4] A bid prepared and awarded by Sarasota County was used as case history for part of the "Jackson Report" economic analysis.

to validate how factual the economic portion of the report was because the two finalists bid different quality products.[5]

3. The report implies that because an agency chose to reference Project 25 Standard equipment before the TIA participants were able to bring them to the marketplace this somehow means the process is flawed and the Project has failed. In fact, we believe these early procurement requests for Project 25 standard equipment only represent the suppressed user demands for standardized equipment. The time to judge the project and the standard is four to five years from now after companies have built and sold products in a competitive environment.

   We are at a loss to understand why a company that claims to promote competition is so aggressively fighting open competition in the free marketplace. The merits, attributes and liabilities of the Project 25 suite of technology standards will be proven by the public safety consumers, not Ericsson, Motorola, the Project 25 Steering Committee or the Commission. The Commission must consider why a company, any company, would so vehemently oppose a voluntary suite of standards.

4. The report uses as a criteria of the project's success the number of international corporations that have chosen to build Project 25 radios. It seems incongruous to us that the report questions why AT&T, NEC, Qualcomm, Nortel, Nokia, Phillips, Alcatel, and

[5] The Project 25 Steering Committee considers quality in a proposal in which we have no first-hand knowledge to be a subjective issue that can only be addressed by the person making the judgment.

Matra would not be building Project 25 products, when the same report is based on the assumption that Motorola already controls 80 to 90% of the United States' public safety market and Ericsson controls the lion share of the rest. Why would one of these companies want to enter the market for 3% or less of the business? Beyond the obvious absurdity of questioning why these companies have chosen not to produce Project 25 products, one might ask when was the last time **any** of these companies responded to a bid on a public safety land mobile, mobile, portable and base-station system in the United States.

There are no economic barriers created by the new Project 25 standards. If there are, how have companies like Transcrypt International, EF Johnson/RACAL, Garmin, RELM, Daniels, and Stanilite been able to pursue the project as far as they have? How do some of Project 25 opponents account for the fact that some of these companies are already beginning to produce products? We believe the Commission needs to ask themselves who will benefit the most from excluding all of these new, small players for the public safety marketplace?

5. The report references numerous times that Project 25 is using "older" and less "spectrum efficient" technology. The authors of the report and Ericsson have previously attempted to support that argument based on statements made by a former employee of the Commission. Obviously, we respect the rights of the authors, Ericsson and the former FCC employee to express their opinions. However, we think the Commission has the responsibility to review and understand the public policy and technical issues associated

with those generally unsubstantiated and undefined claims of "Spectrum Efficiency." For example, consider the following:

A. The Project 25 Steering Committee strongly supports our original decision to adopt FDMA as our primary access method. Even though that decision was made in the very early 1990s, we have yet to be provided **any** independently arrived at empirical data indicating that decision was flawed. Instead, the proponents of TDMA continue to flood the public safety consumers with advertisements and claims that TDMA is more spectrally efficient than FDMA. One can only ask "Where is the Beef?" Approximately three years ago, the Project 25 Steering Committee asked the APCO Interface Committee for TIA to fund an independent study to resolve the debate of spectrum efficiency. Apparently none of the TIA members participating in the project felt a study would be worth the expense. Even the company that continues to claim TDMA is more efficient than FDMA was silent on the proposal.

B. We believe the continued debate on spectrum efficiency is nothing more than an effort to divert attention from one company's concerted effort to protect their own market share and business interest. Month after month, meeting after meeting, year after year that company has had every opportunity to present the facts to substantiate their barrage of technology claims. In three years they have yet to convince any of the participating users or manufacturers. We believe this entire so-called issue of spectrum efficiency should be quickly rejected by the Commission. Unless the Commission is willing to conduct an extensive, independent evaluation of this issue, they are simply wasting more valuable time

and further delaying the implementation of our critical Project 25 Standards, which is what we believe some of our standards opponents want. In light of the complexity of this entire issue let us point out a few facts that should be indisputable.

I. All of the technology decisions for Project 25 Phase I have been made and approved. Debate on Phase I is no longer appropriate or productive. As of this date, there have been no decisions made on technologies that would best fit the needs of the user in Phase II, our 6.25 KHz standards effort.

II. To our knowledge there have been no tests conducted or test data reviewed in a public forum to substantiate Ericsson's claims that two slot TDMA in a 12.5 KHz channel is more spectrally efficient than FDMA at 6.25 KHz. In the absence of any empirical data to support those claims, the entire issue becomes a moot point.

III. Recent studies by Motorola reject Ericsson's claim that 12.5 KHz TDMA radio fits within a 12.5 KHz mask. Motorola's claim appears to be substantiated by Ericsson's previous request to the FCC to modify the mask to accommodate their 2-slots in a 12.5 KHz proposal.

IV. We have been told by the manufacturers of products designed to meet our Project 25 standards that all of their tests clearly indicate those products will fit the FCC specified mask.

TDMA Vs. FDMA:

The Project 25 Steering Committee made its decision to adopt a 12.5 KHz FDMA methodology long before there was any indication the Commission may release new spectrum to public safety users. It was the best decision then because it provided a clear backwards and forward migration path and met most of the users needs. We also believe it was the best solution to ensure better utilization of our finite resources. It truly allows for the users individually and collectively to obtain maximum utilization of all the spectrum available. It was and still is the only proposal that puts the small user on a level playing field with the large users. It was and is the only proposal that ensures licensees will only license what they can justify.

The Project 25 Steering Committee does not oppose the use of TDMA or other relatively wide band technologies. In fact we strongly support their use when one of these technologies will best resolve an individual public safety user's needs. However, we believed then, as we believe now, that implementation of TDMA, CDMA and other wide band technologies should be limited to a block of new clean spectrum.[6] In our opinion, the use of TDMA and CDMA will be limited to very high density systems in a few metropolitan areas where capacity is the only issue. Furthermore, we believe the users of this new spectrum must be able to clearly demonstrate how these wide band channels will be used to accommodate multiple users or at least enough users to fill each channel's allocations to the same theoretical and actual channel loading as FDMA users. In other

[6] It should be noted that the European TETRA Standard implementation is totally dependent on the allocation of a large block of clean spectrum that can be used by new licensee.

words, they (wide-band channel users) must be held to the same standard to which other users are held.

We believe the entire debate on "Spectrum Efficiencies" has been over-generalized, and is lacking in specific application. In our opinion, the Commission will find after it sorts through the various arguments, claims and counter claims on spectrum efficiency that both kinds of technologies can and will be spectrally efficient, when applied on a case-by-case basis, matching user needs with available spectrum, size of system, location of system and actual hardware available to satisfy those needs. In short, we consider Ericsson's claim of spectrum efficiencies nothing more than a red herring designed to divert attention from the fact they choose not to offer a technology based on an open standard with both forward, horizontal and backward compatibility.

Finally, to ensure that the Commission is provided other perspectives of these Ericsson-generated reports, we have attached Motorola's and Transcrypt International's formal comments on how they view the same material. Each of these new reports was prepared by an employee or consultant for one of the other companies, as was the original "Jackson and Hatfield Reports."

Public Safety Standards:

The Project 25 Steering Committee also agrees with the PSWAC recommendation to the Commission that the creation of public safety standards should be based on an "open and fair" process. We support the Commission's desire to include Federal, state and local

governments in their planning process. Long before the Commission released NPRM 96-86, the Project 25 Steering Committee and our partners in TIA were developing voluntary standards (Project 25 Standards) to "...facilitate the development..." of technology that provides interoperability. These voluntary standards are predicated on the reality that new technology must be backward compatible to today's analog FM technology, horizontally compatible with our Project 25 Phase I, 12.5 KHz, narrow band, digital standards and vertically compatible with our evolving Phase II, 6.25 KHz, very narrow band digital standards.

Standards Process:

All the Project 25, Phase I Standards were predicated on the users perspective of the "...service features and system requirements essential to the effective performance of public safety...." In spite of the tremendous pressure of one of the standards opponents to divert our course to other technology solutions, we remain true to developing standards that fit the needs of the "majority" of public safety users. These voluntary standards have been developed with the knowledge and understanding that, in general, public safety agencies needed to acquire competitive systems and hardware that fit their individual system needs. In the context of that understanding, there is nothing to preclude an agency from acquiring a non-standard, proprietary system, if that system meets their agency's specific requirements. Once again, in the competitive free-market system that Project 25 is creating, the buyer will prevail.

Enhancement and Improvements to Technology:

The Project 25 Steering Committee is very encouraged by the Commission's desire to address "technological issues regarding the enhancement and improvement of public safety wireless communications." In fact, we believe our Project 25 Standards meet and exceed the Commission's stated expectations to "enhance and improve" wireless technologies. We are also pleased to see the Commission is formally moving to seek out advice on "...regulatory approaches..." that address the problems of "...congested spectrum and fragmented public safety allocations." We believe our existing Project 25, Phase I, 12.5 KHz standards and our proposed Phase II, narrow band standards are poised to provide significant improvement in the use of today's congested public safety spectrum.

Real Spectrum Needs:

Project 25 technology standards will also provide the Commission and the public safety community a tremendous opportunity to refarm the current spectrum and obtain maximum benefit of any new spectrum the Commission is able to allocate in the future. However, neither the standards we are proposing nor any of the technology now readily available in the marketplace will resolve the continuing problem of a lack of accessible adjacent spectrum. In our opinion, there are only two possible solutions to this difficult and complex problem of the lack of spectrum for public safety use. We have the option of finding additional adjacent spectrum or creating new, economical technology that will work across multiple bands. It is important to stress that the allocation of additional spectrum has been recommended by PSWAC and virtually all of the public safety community. To be most effective, this spectrum must be compatible with existing public

safety spectrum, both in the VHF high band and UHF spectrum. Obviously, since this portion of the spectrum is currently authorized for the use of other services, someone must be reallocated. Such reallocation must consider the priorities guaranteed public safety by both the Congress and the Communications Act. It should consider allocating to public safety any spectrum that might be available or made available in the VHF high band and UHF band that would allow an allocation of spectrum to public safety in a large contiguous block. We also believe the Commission should give further consideration to finding a source of Federal funding and/or subsidies to accelerate the development of economical multiple band, multiple mode technology that is backward compatible with analog FM, Project 25 standards, and a multitude of proprietary techniques, and forward compatible with the various digital and narrow band technologies now being used or proposed. From our perspective, anything short of these solutions is, and will continue to be, only a partial solution.

Cooperative Effort:

The Project 25 Steering Committee remains committed to seeking out solutions and addressing the interoperability issue one step at a time. In support of that belief, we and our partners in TIA have created the Project 25, Phase I standards, a significant milestone in the evolutionary process to total interoperability. Our members and the agencies and Associations they represent remain committed to working with any agency or company in an effort to cooperatively develop short- and long-term goals that will facilitate those objectives.

The Realities of Spectrum Efficiencies:

Of greater concern to the Project 25 Steering Committee is the continued debate on spectrum efficiency that is taking place when, as of this date, the Commission itself has failed to define what is meant by the term "spectrum efficiency." By failing to define "spectrum efficiency," the Commission has, perhaps unknowingly, created a public relations debate with no beginning and no end. We have previously cited examples where TDMA may be spectrum efficient because of the technology's inherent ability to automatically derive two 12.5 talk paths from every 25 KHz channel, hence user receives the so-called two-for-one improvement. We have also noted that the Project 25 Steering Committee rejected the notion that automatically obtaining two or four channels for one is spectrally efficient for the majority of our users because not every user can justify or adequately use both talk paths. In spite of our rejection of TDMA as a spectrally efficient base line for the Project 25 standards, we have never stated there are not applications where TDMA may be more spectrally efficient.

Unfortunately, the opponents of FDMA and some of the Commission's own staff have not been willing or able to recognize both technology solutions can be spectrally efficient if applied correctly. In analyzing public safety needs and reviewing APCO's frequency coordination records, we determined in the early 1990s that the majority of public safety users had 50 or less mobiles. Obviously, since the majority of public safety users are small users, it doesn't make a lot of sense to allocate any more spectrum than each user requires. Unlike our FDMA opponents, we did not choose to make another large leap of

faith and draw the conclusion that TDMA technology was not spectrally efficient. Instead, we concluded that for a number of reasons, including spectrum efficiency, the best solution for most of our users is FDMA. That does not mean our best solution will always be FDMA or that the best solutions for all of our users is FDMA, it simply means the best solution for the majority of users was and is at this time FDMA. While our opponents continue to focus on technology solutions that will best fit their market basket of products, the Project 25 Steering Committee continues to focus on all the needs of public safety, which includes our partners in the Federal Government.

Promoting Competition:

In spite of our strong and unwavering support for Project 25 FDMA standards, we agree with and support the need for some public safety users to build and install systems that do not meet those standards. The Project 25 Steering Committee has promoted "...competition in the supply of goods and services used by public safety agencies," from its inception. It should be obvious to even a disinterested third party that there is potentially more competition in the marketplace today than there has been since the days of conventional radio systems.

In the marketplace created by Project 25, a buyer can select from one of the proprietary suppliers or from one of the Project 25 suppliers. Public safety consumers who want a proprietary system can choose a design and specialized system to fit their needs. Depending on their specifications, they could get bids from one or more hardware manufacturers. For example, a large multiple city, multiple agency telecommunications